

POST-COMMUNIST DEMOGRAPHIC CHANGES IN ROMANIAN MOUNTAIN COMMUNITIES. CASE STUDY: THE POIANA RUSCĂ MOUNTAINS

ANA-MARIA POP^{*}, LELIA PAPP^{**}, GHEORGHE HOGNOGI^{***},
ALEXANDRA-CAMELIA POTRA^{****}

Key-words: population decline, Poiana Ruscă Mountains, rural area, mountain area, demographic aging.

Abstract. One of the main demography-related problems in Romania, aggravated in mountain areas, is population decline, associated with demographic aging, out-migration of adult population, low living standards, etc. The Poiana Ruscă Mountains is one of the Romanian areas representative of this demographic phenomenon. The paper is focused on the analysis of post-socialist demographic trends (since 1992), based on which a demographic projection of the community in the area was produced. An intense and continuously downward demographic trend was observed in a number of settlements and, in a smaller degree, stagnation or a slightly upward demographic trend in other settlements. We conclude that in the absence of concrete housing policies, the number of abandoned villages will be increasingly higher and more settlements will become extinct; hence, other derived negative effects.

1. INTRODUCTION

The European mountain areas experience different demographic trends, depending on the degree of attractiveness and connectivity of the mountain massifs, the degree of comfort offered by the housing structures or the socio-cultural activities in these areas. However, increasingly more areas become repulsive, the demographic changes in the recent decades affecting the viability of settlements. It is also the case of the Romanian rural areas, most of them facing a sharp demographic decline up to the extinction of increasingly more settlements.

Thinking solutions for economic recovery by copying or replicating foreign, European models is unnatural and unlikely to give the desired results (Rey, 2014, p. 16). The different territorial context for the development of mountain areas is a prime factor to support the above-mentioned statement.

The type of economy dictated by the political regime of the Eastern European countries, unlike the democratization of the western economy, was reflected also in the degree of stability of the mountain settlements. Collectivization imposed on the Romanian territories by the socialist regime, excepting the mountain areas proper, caused the economic exploitation of the existing agricultural landscapes. The agricultural marginalization of the mountain areas was multiplied in the post-socialist period by the restructuring of the secondary sector and the closure of several iron, marble, and coal mines and quarries in the Poiana Ruscă Mountains, which affected the livelihood of inhabitants. The most visible effect was the exodus of population.

^{**} Lecturer, Ph.D., Babeş-Bolyai University, Faculty of Geography, Centre for Regional Geography, 5–7 Clinicilor Street, 400006, Cluj-Napoca, Romania, lelia.papp@ubbcluj.ro.

^{***} Assistant Lecturer, Ph.D., Babeş-Bolyai University, Faculty of Geography, Centre for Regional Geography, 5–7 Clinicilor Street, 400006, Cluj-Napoca, Romania, gheorghe.hognogi@ubbcluj.ro.

^{****} Ph.D., Babeş-Bolyai University, Faculty of Geography, Centre for Regional Geography, 5–7 Clinicilor Street, 400006, Cluj-Napoca, Romania, alexandra.potra@gmail.com.

^{*} Researcher III, Ph.D., Babeş-Bolyai University, Faculty of Geography, Centre for Regional Geography, 5–7 Clinicilor Street, 400006, Cluj-Napoca, Romania, ana-maria.pop@ubbcluj.ro.

In the post-socialist period, the entire Romanian economy has experienced a period of transformation and adaptation to market conditions, a phenomenon strongly influenced by the accession of Romania to the EU and the compliance of the Romanian legislation with the European regulations on various types of policies (agricultural, social, housing, etc.). The most widespread social phenomena were unemployment, extreme poverty and subsistence farming (Mihalache and Croitoru, 2011, p. 28). Against this background, negative demographic mutations have occurred in the mountain area as well. In the area under study, the extent of demographic disparities is growing and increasingly more settlements are on the verge of extinction in the absence of any inhabitants.

The main objectives of this paper were to identify the demographic trend in the Poiana Ruscă Mountains, determine the population development scenario for the coming decades, and outline the problematic areas in terms of depopulation.

Mountain areas – neuralgic demographic areas

At European level, mountain areas have evolved differently in a series of states, mountain tourism representing the means of socio-economic recovery for some of them. According to the estimates made by the authors of the project *PADIMA: Policies against Depopulation in Mountain Areas* (2012), the phenomenon of depopulation in the European rural areas is continuously growing so that, by 2025, about 90 of these regions may be subjected to this phenomenon and mountain areas are expected to be most affected.

According to a study on mountain areas funded by the European Commission, demographic decline is recorded in Bulgaria, Finland, Norway, Portugal, Romania and Sweden, but also in the mountain areas of Corsica, Sicily and the central Apennines of Italy, while in countries such as France, Spain, Slovenia, Switzerland, western Austria, parts of Germany or Italy some mountain areas have recorded positive population changes (Nordregio *et al.*, 2004). Nevertheless, recent studies (Alpine Convention, 2015, p. 13) indicate that wide areas of the Alps have experienced “a severe depopulation trend” in the 20th century. A similar trend has been reported for the North Plateau, the Iberic System and the Pyrenees in Spain (OECD, 2009, p. 44), but also for the Southeastern Europe, where “depopulation in some mountains has taken staggering proportions” (Zhelezov, 2011). Although generally characterized by a demographic vitality (Soja, 2012), large spatial disparities of population changes have been noticed in the Polish Carpathians as well.

Triggering factors may differ from one mountain area to another (economically or politically induced depopulations, natural constraints, etc.), but no matter the cause, depopulation has serious medium and long-term consequences on this special type of areas, generally characterized by high economic, social, cultural, and environmental potential, which explains the growing number of initiatives and the increasing attention paid to strategies to fight depopulation in these areas (PADIMA, 2012; Bausch, Koch and Vesper, 2014). As the phenomenon is complex and territorially specific, practice indicates that holistic (Gløersen *et al.*, 2016) and place-tailored approach to tackling the demographic challenge in mountain areas is vital.

In Romania, mountain areas and the problems they face are known most in terms of their agricultural productivity, land fragility or the precariousness of human resources. This is confirmed by the inclusion of 71,341 km², namely 30% of the national territory, in the less-favoured mountain area category (LFMA), according to the Council Regulation (EC) No 1257/1999 (*Strategia de dezvoltare teritorială a României. România policentrică 2035*, 2014, p. 231).

The *National Rural Development Plan 2014–2020 (Programul Național de Dezvoltare Rurală pentru perioada 2014–2020*, 2014) provides measures to support the mountain area, namely to

encourage the emergence of farms and household-made products, but also the revitalization of the mountain villages by valorising their cultural heritage. In addition, it envisages the identification of solutions to mitigate demographic decline by supporting the creation of mountain cooperatives and groups of producers, with their own warehouses to facilitate the trade of mountain products.

According to *Law No. 350/2001 on spatial and urban planning*, less-favoured areas (LFAs) are strictly territorially delineated geographical areas with certain characteristics. Of those specified by law, the area under analysis is characterized by industrial restructuring and collective layoffs, as well as by an underdeveloped infrastructure. Additionally, several typologies of less-favoured areas can be identified, such as less-favoured agricultural areas, including less-favoured mountain areas, former less-favoured areas (with inactive legal status) and special economic areas – industrial restructuring areas and resorts (*Strategia de dezvoltare teritorială a României. Studiul de fundamentare 23. Zone cu specific geografic*, 2014, p. 15).

Another solution to support mountain areas is provided by the *Mountain Law No. 347/2004*, which encourages the consolidation of associative forms and the valorisation of the mountain area resources.

The *National Rural Development Plan 2014–2020* (2014) redefines LFAs in compliance with the new Community criteria. Therefore, for the programming period 2014–2020, LFAs are recognized as areas facing natural or other specific constraints (ANCs), with three categories of areas, namely “mountain areas”, “areas affected by significant natural handicaps” and “areas affected by specific handicaps”. *Measure 13. Payments for areas facing natural or other specific constraints*, included under the Romanian Rural Development Plan 2014–2020, is meant to support farmers in order to mitigate the risk of land abandonment in these areas and, hence, other associated risks such as loss of biodiversity or loss of valuable rural landscape.

The National Strategy for the Sustainable Development of the Mountain Area 2014–2020 (*Strategia Națională pentru Dezvoltarea Durabilă a zonei montane 2014–2020*, 2014) recognizes the need for specific measures in order to address the specific challenges of the Romanian mountain areas. Out of its four overall objectives, one is specifically focused on increasing the attractiveness of the mountain areas and stabilizing the mountain population.

However, the current national measures meant to support the development of the mountain area make no reference, except tangentially, to concrete solutions applied to communities in demographic decline.

2. STUDY AREA

The study area broadly overlaps the Poiana Ruscă Mountains. Covering an area of 2,109.3 km², the study area overlaps the administrative territory of three counties (Caraș-Severin, Hunedoara, and Timiș) and 30 LAU 2 units, and includes 110 settlements, out of which 68 are located in the mountain area proper and 42 outside the mountain area, at the feet of the Poiana Ruscă Mountains. Some of these settlements currently have no inhabitants; however, they were included in the study area because buildings are still preserved.

The delineation of the area was made by taking into account both the settlements located in the mountain area and the ones with mountain-based economic activities. The economic activities of the latter, mostly in the secondary sector, contributed to attracting labour force from the mountain villages around. On the other hand, the exploitation of underground resources (charcoal, iron, marble) in the

mountain settlements led to a strong polarization of the human resources from the immediately adjacent area (Hunedoara, Oțelu Roșu, etc.).

3. METHODOLOGY

The identification of demographic disparities in a mountain area affected by profound demographic changes, such as the Poiana Ruscă Mountains, is crucial and compulsory in any spatial planning and regional development strategy designed to respond to local needs. The analysis of demographic changes in a period of intense socio-economic transformations, such as the post-communist period, is a first step both to developing a sound understanding of the trend and reasons having led to certain demographic development and to forecasting the most likely trend that must be considered for further decision making and planning.

In order to identify the demographic evolution in the 110 settlements of the area (108 villages, one town: Oțelu Roșu, and one city: Hunedoara), we analysed population changes between the censuses of 1992 and 2011, with focus on the population growth/decline rate recorded between the two reference points and expressed as a percentage change from the initial value for 1992.

In the second phase, we estimated the size of the population expected by 2031 based on a business-as-usual (BAU) scenario.

Statistical data provided by the National Institute of Statistics Bucharest was processed and analyzed using Microsoft Excel 2016. Proportional and graduated symbol maps were then generated using ArcGIS 10.3 software to represent both the geographic location and the attribute value (number of inhabitants in each settlement in 1992 and 2011, number of inhabitants projected for 2031, absolute population change in each settlement between 1992 and 2011, population growth/decline rate in each settlement between the two reference years).

4. RESULTS

The evolution of the human communities in the Poiana Ruscă Mountains is rendered by three reference points, reflected by the population dynamics between 1992 and 2011 and by a population change projection for 2011–2031.

a). Population dynamics between 1992 and 2011

A large number of settlements in the area under analysis have developed as result of the exploitation and valorisation of the soil and underground resources of the Poiana Ruscă Mountains. Others, such as cities or towns (Hunedoara, Oțelu Roșu – two strong industrial centres, with long tradition in metallurgy), formed polarised areas by attracting the human resources from the mountain villages to work in the factories that used raw materials from the mountains nearby. At the same time, a number of inhabitants from the urban area moved and settled in the mountain villages that owe their existence to the exploitation of raw material resources.

With the industrial privatization and destructuring, this mountain area experienced the effects of transition. In 1992, very small, small and medium-sized settlements, between 15 and 1,000 inhabitants, were predominant (Table 1). In addition, there was only one settlement with no inhabitants (Curpenii Silvașului in Hunedoara County) (Fig. 1).

Table 1
Human communities in the Poiana Ruscă Mountains in 1992

No. of inh.	No. of settlements					Population (1992)				
	CS	HD	TM	Total	%	CS	HD	TM	Total	%
0	-	1	-	1	0.9	-	-	-	0	0.0
1-14	-	4	-	4	3.6	-	28	-	28	0.0
15-49	1	11	-	12	10.9	19	405	-	424	0.3
50-99	-	15	1	16	14.5	-	954	51	1,005	0.8
100-249	1	24	4	29	26.4	100	3,908	756	4,764	3.7
250-499	5	15	8	28	25.5	1,977	5,241	2,895	10,113	7.9
500-999	2	6	3	11	10.0	1,637	3,887	1,972	7,496	5.9
1,000-1,999	2	2	1	5	4.5	3,751	2,898	1,133	7,782	6.1
2,000-4,999	-	1	1	2	1.8	-	2,675	3,277	5,952	4.7
5,000-12,000	1	-	-	1	0.9	-	11,799	-	11,799	9.2
40,000-80,000	-	1	-	1	0.9	-	78,551	-	78,551	61.4
Total	12	80	18	110	100	7,484	110,346	10,084	127,914	100

Source: 1992 Population and Housing Census.

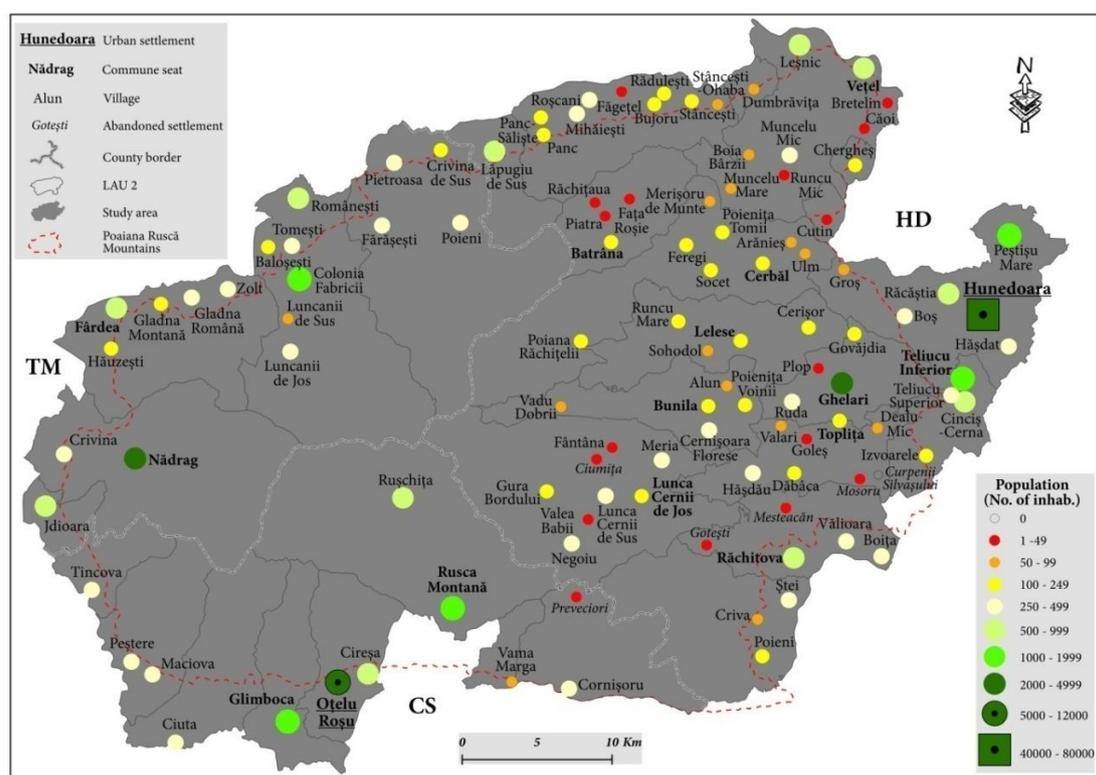


Fig. 1 – Human communities in the Poiana Ruscă Mountains in 1992.

Source: 1992 Population and Housing Census.

Twenty years later, the effects of economic transition were felt even more strongly in the evolution and population size of settlements. These demographic differences are observed both at the level of the study region and at the level of settlements, where particular situations arise. The general demographic trend is downward, resulted from a decrease in the total number of inhabitants from 127,914 inhabitants in 1992 to 96,320 inhabitants in 2011 (Table 2).

Table 2

Human communities in the Poiana Ruscă Mountains in 2011

No. of inh.	No. of settlements					Population (2011)				
	CS	HD	TM	Total	%	CS	HD	TM	Total	%
0	1	5	-	6	5.5	-	-	-	0	0.0
1-14	-	3	-	3	2.7	-	26	-	26	0.0
15-49	-	20	1	21	19.1	-	556	31	587	0.6
50-99	1	15	-	16	14.5	79	1,036	-	1,115	1.2
100-249	-	20	6	26	23.6	-	3,026	1,051	4,077	4.2
250-499	6	9	6	21	19.1	2,128	3,403	1,978	7,509	7.8
500-999	1	4	4	9	8.2	651	2,627	2,411	5,689	5.9
1,000-1,999	2	3	-	5	4.5	3,314	4,109	-	7,423	7.7
2,000-4,999	-	-	1	1	0.9	-	-	2,548	2,548	2.6
5,000-12,000	1	-	-	1	0.9	9,461	-	-	9,461	9.8
40,000-80,000	-	1	-	1	0.9	-	57,885	-	57,885	60.1
Total	12	80	18	110	100	15,633	72,668	8,019	96,320	100

Source: 2011 Population and Housing Census.

At settlement level, very small and small-sized settlements continued to face a negative demographic evolution. The same downward trend was recorded in Hunedoara area and in the two urban centres (Hunedoara and Oțelu Roșu). In the mountain border area, five more settlements were reported to have no inhabitants (Preveciori, Gotești, Mesteacăn, Mosoru and Ciumița) (Fig. 2).

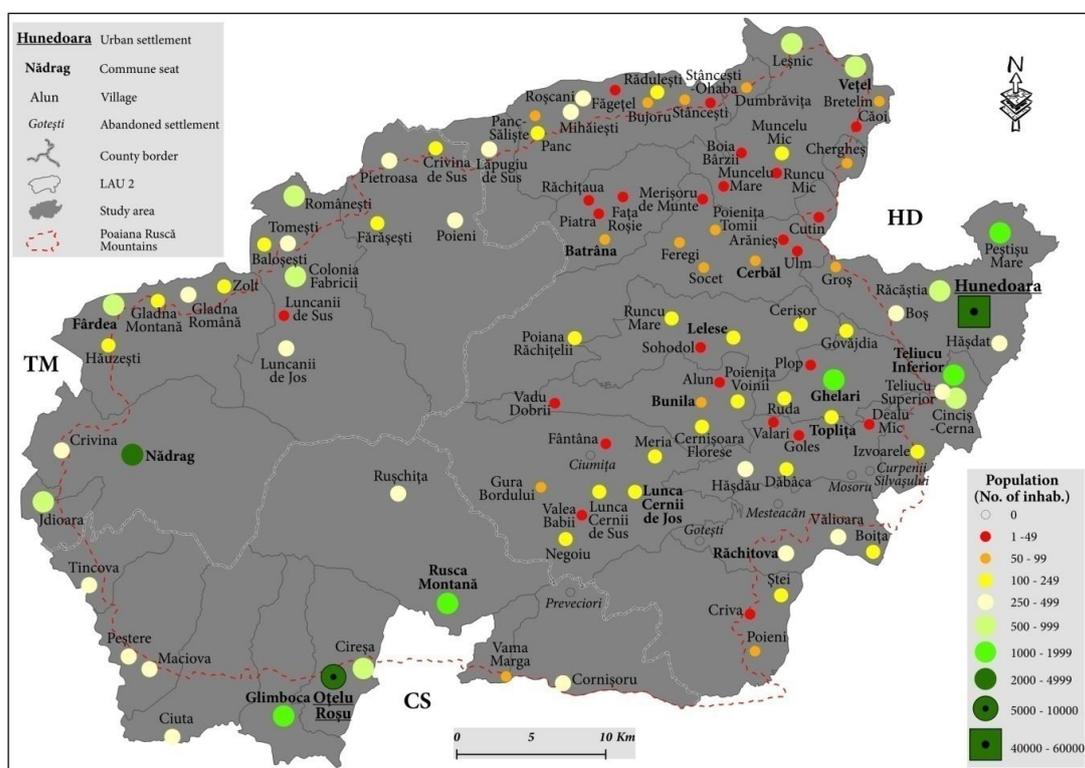


Fig. 2 – Human communities in the Poiana Ruscă Mountains in 2011.

Source: 2011 Population and Housing Census.

The population growth/decline rate, expressed as a percentage change from the initial value for 1992, highlights some particular situations. Of the total of 110 settlements in the area, only nine settlements (of which two very small and seven medium-sized settlements) recorded an upward demographic trend and one settlement is stagnant (Curpenii Silvaşului, with no inhabitants) (Table 3). It must be noted that the two very small settlements, namely Căoi and Bretelin (Hunedoara County), are likely to follow a downward trend because the number of newcomers is not consistent.

Table 3

Population growth/decline rate in the settlements of the Poiana Ruscă Mountains

No. of inhabitants	Population growth rate												Population decline rate												Total				
	+50 - 100 (%)				+0.1 - 25 (%)				0 (%)				-0.1 - 24.9 (%)				-25 - 49.9 (%)				-50 - 99.9 (%)					-100 (%)			
	CS	HD	TM	T	CS	HD	TM	T	CS	HD	TM	T	CS	HD	TM	T	CS	HD	TM	T	CS	HD	TM	T		CS	HD	TM	T
< 50		1		1		1		1		1		1		1		1	3			3	5			5	1	4		5	17
50-99													4			4	1	1		2	10			10					16
100-249													1	2	3	6	17	1		18	5			5					29
250-499	1			1	2	2		4					3	4	5	12	1	6	1	8	3			3					28
500-999					2			2					1	3	3	7	1			1	1			1					11
1,000-1,999													2	2		4		1		1									5
2,000-4,999														1	1	2	1			1									2
5,000-12,000													1			1													1
40,000-80,000																		1		1									1
Total	1	1	0	2	0	5	2	7	0	1	0	1	8	16	12	36	1	30	4	35	1	23	0	24	1	4	0	5	110

Source: 1992 and 2011 Population and Housing Censuses.

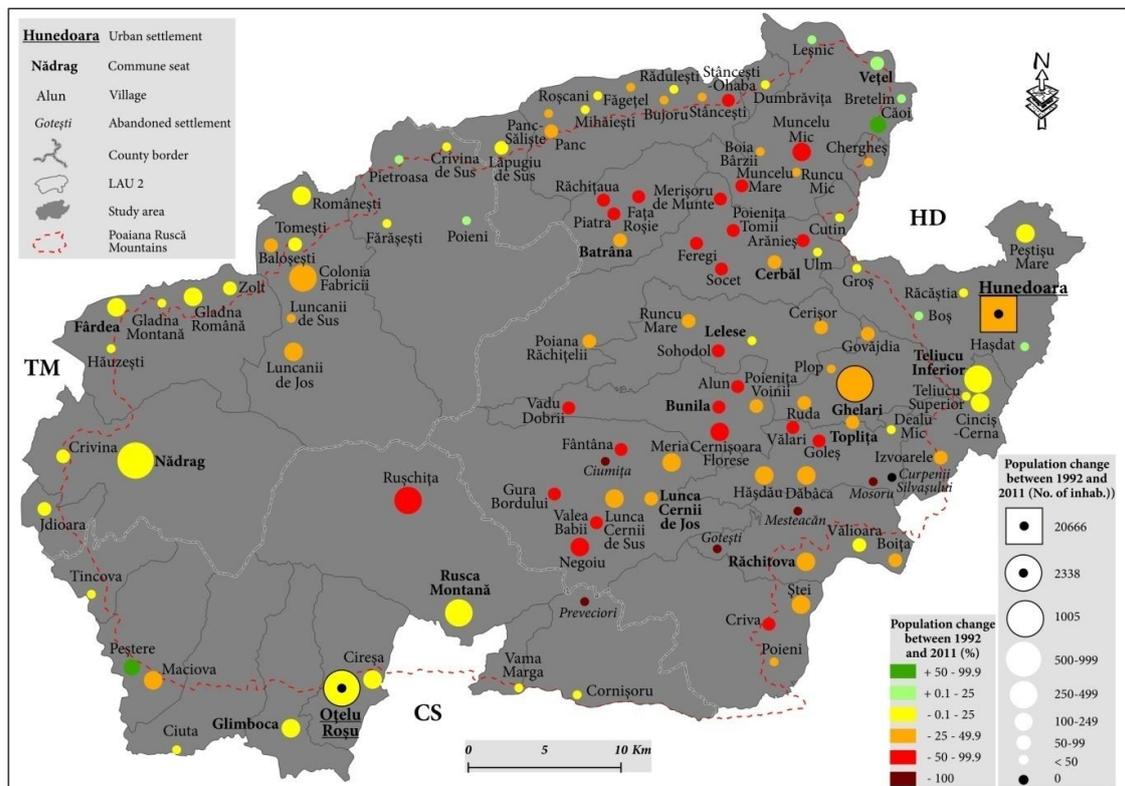


Fig. 3 – Population changes in the settlements of the Poiana Ruscă Mountains between 1992 and 2011.

Source: 1992 and 2011 Population and Housing Censuses

The vast majority of settlements recorded a negative demographic evolution. The settlements most affected by population loss were the very small ones (with less than 100 inhabitants), mostly located in Hunedoara county (Fig. 3). The causes of this substantial decline (between –50 and –99.9%) is due to a negative natural and migratory balance, population aging and cessation of some economic activities.

b). Estimated population changes in the settlements of the Poiana Ruscă Mountains

If we start from the premise that the demographic trend recorded so far is preserved, the demographic state of the mountain area will get worse by the next two censuses as result of an estimated loss of 20,000 inhabitants at regional level.

Table 4

Estimated population changes in the Poiana Ruscă Mountains (2031)

No. of inh.	No. of settlements					Population (2031)				
	CS	HD	TM	Total	%	CS	HD	TM	Total	%
0	1	5	-	6	5.5	-	-	-	0	0.0
1-14	-	16	-	16	14.5	-	141	-	141	0.2
15-49	-	17	1	18	16.4	-	544	18	562	0.8
50-99	1	16	1	18	16.4	62	1,083	81	1,226	1.7
100-249	3	12	7	22	20.0	514	1,861	1,240	3,615	4.9
250-499	2	6	7	15	13.6	761	2,292	2,627	5,680	7.7
500-999	2	4	1	7	6.4	1,181	2,645	500	4,326	5.9
1,000-1,999	2	3	1	6	5.5	2,939	3,100	1,981	8,020	10.9
2,000-4,999	-	-	-	0	0.0	-	-	-	0	0.0
5,000-12,000	1	-	-	1	0.9	7,586	-	-	7,586	10.3
40,000-80,000	-	1	-	1	0.9	-	42,656	-	42,656	57.8
Total	12	80	18	110	100	13,043	54,322	6,447	73,812	100

The settlements that will be the most affected by population decline are the very small ones, especially those with a population ranging between 1 and 50 inhabitants (Table 4), and many of them are most likely to become abandoned settlements. Spatially, the highest level of population scattering will occur in the villages located in Hunedoara County (Fig. 4).

The absence of concrete housing policies and the lack of regional or local initiatives for the conservation of traditional villages entail irretrievable loss of a number of permanent residents, which inevitably results in the extinction of the respective settlements.

5. CONCLUSIONS

Analysis of the 1992 and 2011 population census data indicates a general downward population trend. However, population changes are unevenly distributed across the Poiana Ruscă Mountains. The nine settlements (two of them in the very small size category) that observed an increase in their population are located at the very border or outside the mountain area and show a concentration in the north-east (Leşnic, Veţel, Bretelin, and Căoi, all located in the commune of Veţel, in the proximity of the city of Deva; Boş and Hăşdat, component settlements of the city of Hunedoara). One settlement (Curpenii Silvaşului) was stagnant, recording no inhabitants both in 1992 and in 2011, while the other 100 settlements, including the two urban centres (Hunedoara and Oţelu Roşu) fell in the settlements

with negative demographic evolution category. All the settlements with a population decline rate ranging between -50 and -100% (Ruşchița in Caraș-Severin County and other 28 settlements in Hunedoara County) are located in the heart of the mountains.

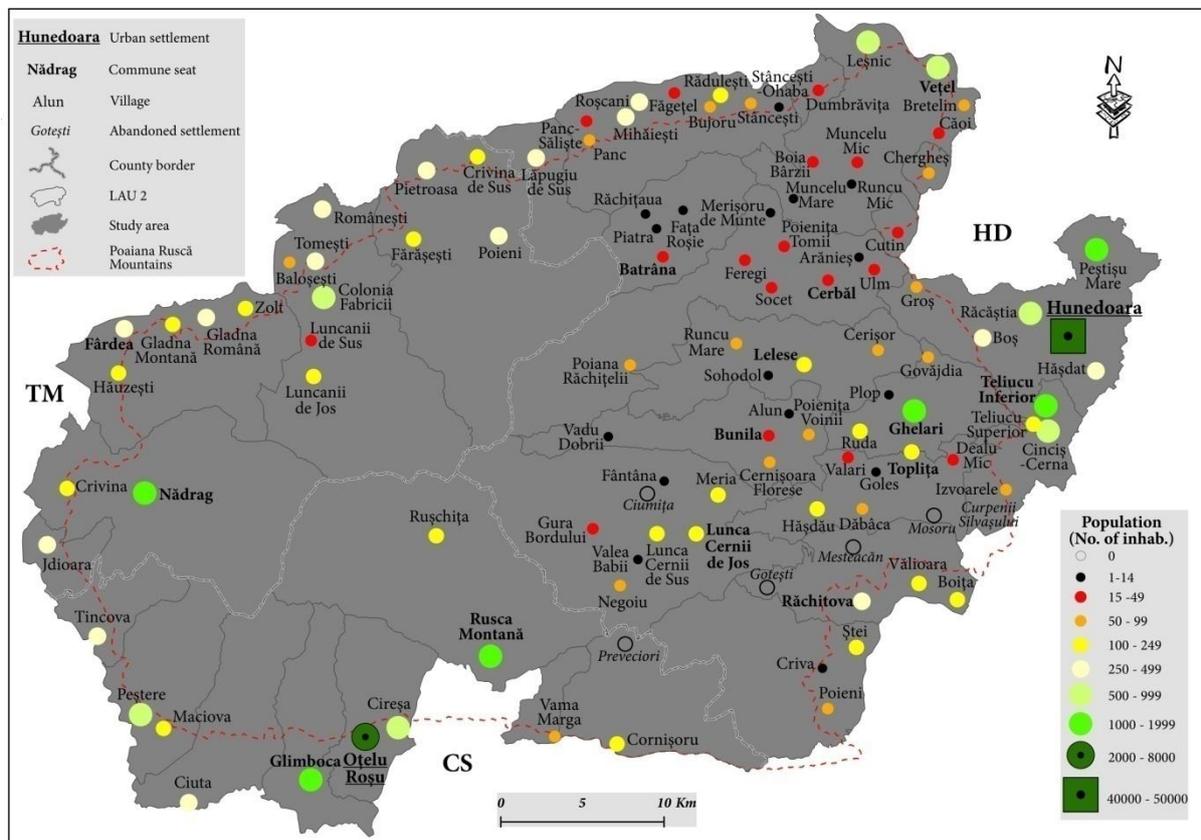


Fig. 4 – Human communities in the Poiana Ruscă Mountains by 2031.

Although demographic risk phenomena, including depopulation of villages, are perceived as potential threats to mountain areas, the actions to mitigate or eliminate them are not explicitly found among the national intervention measures aiming at reviving the mountain area, which are mostly oriented towards its agricultural valorisation, within the framework of the existing financial mechanisms. Faced with an irreversible exodus associated with a sharp demographic aging phenomenon, most of the very small-sized settlements in the study area do not have the necessary lever to maintain their viability and, therefore, they are most likely doomed to extinction in a not too far away future. And the population projection for 2031 that we made based on a business-as-usual (BAU) scenario clearly indicates this direction.

Consideration of policies to revive rural settlements, and especially the ones located in mountain areas, diversification of rural activities or even the identification of different settlement functions and other segments of population (e.g. holiday villages) along with supporting certain complementary economic activities and investments in infrastructure are the main directions to follow.

However, in order to support the knowledge-based planning and decision support making strategies that must be in line with the local needs, further attention should be paid to analysing the

perception of the local community on the demographic phenomena they live, to identifying the dysfunctions they perceive and the potential solutions they foresee for themselves.

ACKNOWLEDGEMENTS

This paper was possible with the financial support of the PN III Programme/Sub-programme 3.1. Bilateral/multilateral/Module AUF-RO under the project DISRUR/14-AUF: “Demographic Disparities in Rural Areas”.

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Received February 27, 2017